As mentioned earlier, Figure 2-5 identifies the nine historical districts in the study area listed on the NRHP. Individual NRHP sites are not presented in this report, but would need to be identified and reviewed as site-specific plans and designs are developed.

Three historic trails listed by Arizona State Parks (ASP, 2004) have been identified in the study area: the Juan Bautista de Anza Historic Trail, the Butterfield Route, and Kearny's Route (Figure 2-5).

The Historic Trail of Juan Bautista de Anza traverses the southwest corner of the study area in a north-south direction. This trail was the first historic overland route (established in 1775) to connect Sonora, Mexico to San Francisco, California. The U.S. National Park Service designated the Juan Bautista de Anza Trail as a National Historic Trail in 1992.

The Historic Butterfield Route also traverses the southwest corner of the study area in a north-south direction, and is located a short distance east of the Juan Bautista de Anza Historic Trail (ASP, 2004). The Butterfield Route is a historic mail route established in 1858 when the Butterfield Overland Mail Company operated its southern mail route from St. Louis to San Francisco.

The Historic Kearny's Route traverses the central portion of the study area east-west along the Gila River (ASP, 2004). Kearny's Route is a historic expedition trail established in 1846 by General Stephen W. Kearny on his march from Fort Leavenworth, Missouri to San Diego, California.

Although the three identified routes are historic trails, none are listed on the NRHP or have been determined eligible for listing on the NRHP. As site-specific plans are developed, future coordination with the appropriate agencies and departments may be required.

Prehistoric Sites

Archaeological properties identified include a wide variety of site types. Prehistoric sites range from small artifact scatters to large habitation centers with ceremonial and engineering features.

2.2.5 Air Quality

The Clean Air Act (CAA) Amendments serve to protect public health and the environment from increased air pollution. Under the CAA Amendments, the EPA has set National Ambient Air Quality Standards (NAAQS) and classifies the degree of severity of existing ambient air pollution as to whether air quality attains or fails to attain the standards as described below. The classification of severity initiates a set of control requirements designed to achieve attainment by a specified date. A non-attainment area is an area in which compliance with NAAQS has not been established for one or more pollutants. States that fail to attain NAAQS for any of the criteria pollutants are required to submit State Implementation Plans (SIP), which outline those actions that will be taken to attain compliance.

As required by the CAA, NAAQS have been established for the following major air pollutants: carbon monoxide (CO), hydrocarbons, nitrogen dioxide (NO_2), ozone (O_3), particulate matter smaller than 10 microns (PM_{10}), particulate matter smaller that 2.5 microns (PM2.5), sulfur dioxides (SO_2), and lead. Carbon monoxide is a colorless, odorless gas that affects the cardiovascular system. Vehicular emissions are a major source of

carbon monoxide. Ozone is created through a complex reaction of hydrocarbons and oxides of nitrogen with sunlight as a catalyst. Ozone affects the respiratory system, and vehicle emissions, power plants, and service stations are major sources. Nitrogen dioxide is a gas with a yellowish orange to reddish brown appearance, depending on its concentration, which impairs the respiratory system. Major sources of nitrogen dioxide are power plants and vehicle emissions. Particulate matter refers to small aerosols that may cause irritation and damage to the respiratory system. Vehicle emissions and the re-suspension of road dust by vehicular activity are common sources. Sulfur dioxide is a colorless gas frequently derived from the combustion of sulfur-containing fuels. It primarily affects the respiratory system; major sources are coal- and oil-fired power plants. Lead and its compounds damage the cardiovascular, renal, and nervous systems. Before the adverse health effects of lead were known, it was commonly used as an additive in gasoline. The primary source of airborne lead is vehicular emissions associated with the use of leaded gasoline. The CAA banned the sale of leaded fuel for use in on-road vehicles in 1996, but allowed leaded fuel to be sold for off-road uses until 2008. Off-road uses include aircraft, racing cars, farm equipment, and marine engines.

Within the study area non-attainment areas for sulfur dioxide, ozone (8-hour), and PM_{10} have been identified. One sulfur dioxide non-attainment area has been established for Hayden, located in the central-east portion of the study area. One ozone non-attainment area has been established for the Phoenix Metropolitan Area, located in the northwestern corner of the study area. Three non-attainment areas for PM_{10} within the study area have been established: for Hayden in the central-east portion of the study area, for Miami in the northeastern portion, and for the Phoenix Metropolitan Area.

In addition to the non-attainment areas mentioned above, one additional non-attainment area for PM_{10} is adjacent to the study area boundaries. The adjacent PM_{10} non-attainment area has been established for Rillito and borders the south-central boundary of the study area. Table 2-5 and Figure 2-6 identify the six non-attainment areas located within and adjacent to the study area.

Table 2.5 Air Quality Non-Attainment and Maintenance Areas

Air Quality Pollutant	Planning Area	Pollutant Sources	Status
Sulfur dioxide	Hayden	Copper smelter stack and fugitive emissions.	ADEQ submitted a Maintenance Plan in 2002 and is currently under review by EPA.
Ozone – 8 hour	Phoenix-metropolitan	Volatile organic compounds (VOC) and nitrogen oxides (NOx) emissions from point, non-road, area, stationary, motor vehicle, and biogenic sources.	MAG is developing a redesignation request for submittal to EPA in 2009. Request for redesignation to Attainment based on 2005-2007 monitoring data
PM_{10}	Phoenix-metropolitan	Fugitive dust and windblown dust from paved and unpaved roads, construction sites, agricultural fields, and vacant lots.	ADEQ has submitted a new 5% Annual Reasonable Further Progress Serious PM_{10} Area SIP Revision on 12/31/07. The revised SIP plans for an attainment demonstration for the 2008-2010 timeframe.

Table 2.5 Air Quality Non-Attainment and Maintenance Areas (cont.)

Air Quality Pollutant	Planning Area	Pollutant Sources	Status
PM_{10} (continued)	Hayden	Road dust and copper ore unloading, crushing, and conveying activities from the Ray Unit crushing plant.	EPA announced an Enforcement Consent Order on 4/16/08 requiring cleanup at the site's major source of air pollution. A new Maintenance Plan will be developed once the required cleanup is achieved. ADEQ plans to submit a redesignation request and Maintenance Plan by the end of fiscal year (FY) 2009.
	Miami	Road dust and copper ore unloading, crushing, and conveying activities from the BHP Copper Mine, Carlota Copper Mine, and Phelps-Dodge Mine.	EPA has issued Clean Data Findings for Miami non-attainment area. ADEQ plans to submit a request for redesignation and a new Maintenance Plan for the Miami PM_{10} area by 6/30/08.
	Rillito	Arizona Portland Cement Company activities along with construction activities, unstabilized river banks, agriculture, unpaved roads, and unstabilized road shoulders.	EPA has issued Clean Data Findings for Rillito non-attainment area. ADEQ plans to submit a request for redesignation and a new Maintenance Plan for the Rillito PM_{10} area by 6/30/08.

Source: Arizona Department of Environmental Quality

Federal agencies and metropolitan planning organizations (MPOs) are required by Section 176c of the CAA to ensure that all transportation projects conform to the approved air quality SIP. The purpose of a SIP is to eliminate or reduce the severity and number of NAAQS violations. The conformity determinations for federal actions related to transportation projects must meet the requirements of Title 40 of the CFR Parts 51 and 93.

Proposed projects within the boundaries of a non-attainment area will need to be included in an approved transportation improvement plan for at least one year, and no more than three years, prior to construction. The Transportation Improvement Plan requires approval from the FHWA and EPA as conforming to the SIP and the Federal Implementation Plan. EPA regulations and FHWA guidelines require future traffic studies to include an assessment of mobile source air toxics that may adversely affect local communities. Project impacts to the existing facility, traffic volumes, increase of heavy vehicles, traffic delays, or any other factor that may increase emissions impacts will require evaluation for adverse affects of mobile source air toxics.

Construction related disturbance of the soil by heavy equipment would increase fugitive dust and, if uncontrolled, would affect local air quality. In addition, construction-related traffic delays, combined with exhaust emissions from constructed-related equipment, may elevate levels of pollutants. Such impacts are temporary and can be eliminated once construction is

complete. Proposed construction activity within the study area must adhere to the ADEQ air quality rules and regulations, and to any local ordinances.

2.2.6 Hazardous Materials

Hazardous materials are regulated by the EPA pursuant to the Federal Resources Conservation and Recovery Act and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The EPA implements CERCLA, commonly known as Superfund, and its amendments, the 1986 Superfund Amendments and Reauthorization Act. The ADEQ website and Interactive GIS eMap were reviewed for Federal Superfund Sites, including National Priority List, Department of Defense, and Arizona Water Quality Assurance Revolving Fund (WQARF) sites. A one mile search radius was utilized to identify superfund sites within and around the Central Framework study area.

One superfund site was identified within the study area and is identified as the Pinal Creek WQARF registered site. The site is located in the Miami-Globe area of Gila County. The site has irregular boundaries, including the entire areas of the Phelps-Dodge Miami Mine and the BHP Copper properties (Copper Cities Mine, Miami Mine, Old Dominion Mine and Solitude Tailings). The southern boundary follows the Bloody Tanks Wash floodplain along US 60 through Miami to the community of Claypool, and then turns south to follow the Russell Gulch and Miami Wash floodplains toward the confluence with Pinal Creek. The site boundaries then parallel both sides of upper Pinal Creek to the city of Globe. North of the Miami Wash confluence with Pinal Creek, the site boundary includes the Pinal Creek floodplain plus a 1,000-foot-wide margin surrounding the floodplain north to Inspiration Dam. North of Inspiration Dam, the site's northern boundaries reduce to the floodplain of Pinal Creek and terminate at the Salt River.

Source control remedial actions are being implemented at all Phelps Dodge and BHP Copper mining facilities and are continually reviewed by ADEQ (Pinal Creek, 2007). ADEQ is currently reviewing the site-wide soils investigation and the BHP Copper remedial investigation of the Solitude Tailings Impoundment (Pinal Creek, 2007). Additionally, site-wide groundwater, surface water, and discharge monitoring are being conducted with approximately 80 to 100 wells and four surface water sites. Treated effluent from the Lower Pinal Creek Treatment Plant is being monitored monthly. Various source and exposure control actions are implemented at the site mine locations, including facility upgrades, groundwater extraction, groundwater containment, service removal of solution impoundments, capping/covering of tailings, management controls, institutional controls, and storm water controls (Pinal Creek, 2007). The BHP Copper Old Dominion Mine's waste rock and tailings were revegetated in 2004, the BHP Miami Unit No. 2 Tailings were capped and revegetated in 2006, and the Phelps Dodge-Miami slag pile along Bloody Tanks Wash was regraded, capped, and revegetated in 2006 (Pinal Creek, 2007).

At the site, approximately 105 million pounds of heavy metals (aluminum, beryllium, cadmium, cobalt, copper, iron, lead, manganese, nickel, and zinc) have been removed from the aquifers (Pinal Creek, 2007). The treated water was reused at the mines, evaporated at the mines, or released to Pinal Creek (Pinal Creek, 2007). Direct exposure to site contaminants could occur by consuming contaminated surface water or groundwater, or from ingesting or inhaling contaminated soil particles. Local water suppliers, such as the Arizona Water Company and the City of Globe, distribute water from a deeper regional aquifer that meets both the state and federal water quality standards (Pinal Creek, 2007). The Pinal Creek Group offers free well testing for residents who rely on private wells within the site; approximately 90 wells have been replaced to date (Pinal Creek, 2007).